

**ARAB BOARD FOR MEDICAL SPECIALIZATIONS
SCIENTIFIC COUNCIL OF ANAESTHESIA**

*Final exam - Paper One
October / 2005
9-11 P.M*

NAME:
NUMBER:
CENTER:

The Arab League
Council of Arab Health Ministers
The ARAB BOARD FOR MEDICAL SPECIALIZATIONS
Scientific council of Anesthesia

INSTRUCTIONS FOR THE EXAM
'PAPER' One

October 2005
9 - 11 A.M

1. Mark your number and write your name
2. Be sure to give all papers (questions & answers sheets) to the supervisor before you leave the exam room. Any missing paper may oblige us to cancel your examination.
3. Time allowed: TWO HOURS.
4. You are not allowed to leave the examination hall before 30 minutes have passed.
5. If you have an urgent need to talk to the supervisor or to leave the room for any reason, you have to raise your hand (do not ever talk) until he comes and responds to your request.
6. Try to answer all the questions, as there is no penalty for wrong answers.
7. This book contains 17 numbered pages. Verify the number of pages. Be sure that there are no repeated pages or missing ones.

This paper consists of 75 multiple-choice questions. There is only one correct answer for each question. Select the single most appropriate answer and mark it on the answer sheet.

GOOD LUCK

1. Resectional pulmonary surgery is probably contraindicated if :
 - A. Resting PaO_2 on room air is 88 mm Hg
 - B. Resting PaCO_2 is 52 mm Hg
 - C. FEV_1 is 80% of predicted
 - D. MVV is less than 75% of predicted
 - E. Patient is dyspneic after climbing three flights of stairs

2. In the anesthetized paralyzed patient in the lateral decubitus position, with the chest open during one lung anesthesia :
 - A. The dependent lung receives relatively less perfusion
 - B. The nondependent lung receives relatively more perfusion
 - C. The dependent lung remains relatively poorly ventilated
 - D. The nondependent lung will be hyperventilated
 - E. Both lungs will be better ventilated

3. Which of the following is NOT an indication for fiberoptic bronchoscopy?
 - A. Vertebral artery insufficiency
 - B. Removal of fragile foreign body
 - C. Poor dental status
 - D. Increased patient comfort
 - E. Ability to enter smaller bronchi

4. Airway resistance increase caused by histamine release is LEAST likely following :
 - A. Thiopental
 - B. Methohexitone
 - C. Fentanyl
 - D. Morphine
 - E. Meperidine

5. Which of the following features of cardiovascular function do not change appreciably with aging :
 - A. Maximum heart rate
 - B. Cardiac output at rest
 - C. Early diastolic filling
 - D. Afterload
 - E. Resting heart rate

6. The most common cause of congestive heart failure in the elderly is :
 - A. Coronary artery disease
 - B. Hypertension
 - C. Diastolic dysfunction
 - D. Systolic dysfunction
 - E. Idiopathic cardiomyopathy

7. The best evidence to support a perioperative myocardial infarction includes all of the following EXCEPT :-
 - A. Q waves on ECG
 - B. Tachycardia
 - C. Segmental wall motion abnormalities by 2-D echocardiography
 - D. Creatine kinase-MB fraction present
 - E. Troponin I present

8. The advantages of using intraoperative autologous cell savers include all the following EXCEPT :
 - A. Removal of activated clotting factors
 - B. Short processing times
 - C. Low risk of air embolism
 - D. Lack of contamination
 - E. Removal of free hemoglobin and cellular debris

9. Consistent decreases in the whole blood activated clotting time can be expected from all the following EXCEPT :-
 - A. Hemodilution
 - B. Protamine
 - C. Aprotinin
 - D. Surgical incision
 - E. Hypothermia

10. Which component of arterial blood pressure is most consistently reproducible by various techniques and under nonideal invasive monitoring conditions ?
 - A. Diastolic notch
 - B. Diastolic pressure
 - C. Pulse pressure
 - D. Mean pressure
 - E. Systolic pressure

↓ ACT

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11. Cerebral protection provided by barbiturates during carotid artery endarterectomy is characterized by all of the following EXCEPT :
 - A. Protective in global ischemia
 - B. Initially produces slowing of, or an isoelectric EEG
 - C. May induce cardiovascular instability in high doses
 - D. The protective effects are temporary
 - E. Protective in focal ischemia

12. The optimal site for the placement of a single arterial catheter for proximal blood pressure monitoring during descending thoracoabdominal aneurysm repair is the :
 - A. Right femoral artery
 - B. Left radial artery
 - C. Left axillary artery
 - D. Right radial artery
 - E. Left femoral artery

13. Cerebral blood flow can be decreased most effectively by :
 - A. Decrease in MAP
 - B. Hypoventilation
 - C. Hyperventilation
 - D. Sodium nitroprusside
 - E. Trendelenburg position

14. The neurosurgeon says the brain is "tight" when he opens the dura for craniotomy for a tumor. A maneuver that would NOT improve this situation is :
 - A. Hyperventilating to PaCO₂ of 25 mm Hg
 - B. Discontinuing inhalation agents and changing to an opioid barbiturate base anaesthesia
 - C. Rotating the head laterally and applying PEEP to improve cerebral blood flow and oxygenation
 - D. Draining spinal fluid through a lumbar catheter
 - E. Ensuring profound muscular relaxation with vecuronium

15. In an average 70-Kg person, the normal CBF is
 - A. 75 mL/100 g/min
 - B. 1200 mL/min
 - C. 50 mL/100 g/min
 - D. 120 mL/100 g/min
 - E. 250 mL/100 g/min

16. Which of the following drugs is NOT associated with increased intracranial pressure?
 - A. Ketamine
 - B. Succinylcholine
 - C. Sodium nitroprusside
 - D. Nitroglycerin
 - E. Esmolol

17. The normal cerebrospinal fluid pressure in the supine position is :
 - A. 50 mm water
 - B. 40 cm water
 - C. 110 mm water
 - D. 110 cm water
 - E. 10 cm water

18. There is correlation among the PaCO₂ level, CBF, and ICP:-
 - A. Hyperventilation increases CBF.
 - B. Hyperventilation acts within seconds to decrease CBF and reduce ICP.
 - C. Hyperventilation acts only if PaCO₂ level is less than 20 mm Hg.
 - D. Hypoventilation has no effect on CBF if the PaCO₂ is less than 50 mm Hg.
 - E. The least effect of hyperventilation on ICP is when PaCO₂ is 25mmHg.

19. When cerebral autoregulation is disturbed (head injury) :-
 - A. CBF is PaCO₂ level dependent
 - B. CBF is regulated by adrenergic nervous system
 - C. CBF is dependent on arterial blood pressure
 - D. CBF is regulated by cerebral metabolic rate
 - E. CBF is well preserved

20. All the following drugs have a role in brain protection EXCEPT :
- A. Barbiturates
 - B. Propofol
 - C. Ketamine
 - D. Etomidate
 - E. Nimodipine
21. The Glasgow Coma Score is based on :
- A. Assessment of pupil size
 - B. Assessment of respiration
 - C. Assessment of heart rate and rhythm
 - D. Response to eye opening and motor and verbal response
 - E. Assessment of tendon reflexes
22. Which of the following statements regarding carotid endarterectomy is NOT correct :
- A. Stroke is the most common major complication during and after carotid endarterectomy
 - B. Myocardial infarction is associated with 25% to 50% of mortality after carotid endarterectomy
 - C. The majority of neurologic deficits after carotid endarterectomy are caused by thromboembolism
 - D. Major blood loss, up to 1000 mL, is common
 - E. Normocarbica is recommended by most of the experts
23. Regarding the effect of nitrous oxide on the brain :
- A. N₂O increases CBF more than 60%
 - B. N₂O has no effect on ICP increase
 - C. N₂O given with volatile agents has no effect on CBF
 - D. N₂O decrease CBF
 - E. N₂O has no effect on CBF

20 - C
21 - D
22 - D
23 - A

24. During cerebral aneurysm surgery the surgeon places a temporary vessel clip on the major conductive vessel of the aneurysm. The best protection is usually achieved by :
- A. Acute hypothermia
 - B. Induced hypotension
 - C. Induced hypertension
 - D. Administration of the barbiturates
 - E. Increasing PaCO₂ level above 40 mm Hg to increase cerebral blood flow
25. Control of ICP during induction includes all of the following EXCEPT :
- A. Thiopental
 - B. Narcotic
 - C. Sodium nitroprusside
 - D. Nondepolarizing muscle relaxant
 - E. Short-acting beta blocker
26. The relationship between PaCO₂ and cerebral blood flow (CBF) is well known. Therefore, for each 1 mm Hg increase in PaCO₂, CBF will increase by :
- A. 10%
 - B. 20%
 - C. 2%
 - D. 1%
 - E. 5%
27. Side effects of extracorporeal shock wave lithotripsy (ESWL) include all of the following EXCEPT :
- A. Hematuria
 - B. Petechiae
 - C. Decreased renal function
 - D. Goldblatt type of hypertension
 - E. Lung injury

24-0 C C D
25-
26-
27

28. During cystoscopy, the blood pressure in a patient with T6 paraplegia jumps from 110/60 to 200/110. The heart rate drops from 80 to 46. the increase in blood pressure is most likely due to :
- A. Parasympathetic vasoconstriction below T6
 - B. Sympathetic vasoconstriction above T6
 - C. Altered baroreceptor function
 - D. Sympathetic vasoconstriction below T6
 - E. Fluid overload
29. Factors contributing to oliguria during general anaesthesia include all of the following EXCEPT :
- A. Increased concentration of vasopressin
 - B. Increased concentration of aldosterone
 - C. Hypotension
 - D. Hypovolemia
 - E. Administration of aminoglycoside antibiotics
30. If one were to control autonomic hyperreflexia with antihypertensive agents alone, the best agent would be :
- A. Sodium nitroprusside
 - B. Trimethaphan
 - C. Hydralazine
 - D. Nifedipine
 - E. Labetalol
31. Effects of hyponatremia < 115 mEq/L include all of the following EXCEPT :
- A. Seizures
 - B. Narrowing of the QRS complex
 - C. Confusion
 - D. Depressed myocardial contractility
 - E. Cardiac Dysrhythmias

28 - D
29 - E
30 - B
31 - B

32. Treatment of the TURP syndrome includes all of the following

EXCEPT:

- A. Mannitol 50 gm IV
- B. Furosemide 20 mg IV
- C. Supplemental oxygen
- D. Hypertonic saline
- E. Anticonvulsant

33. An antihypertensive agent that should be avoided in patients with end-stage renal disease is:

- A. Trimethaphan
- B. Sodium nitroprusside
- C. Nitroglycerin
- D. Propranolol
- E. Nifedipine

34. Electrolyte changes that occur secondary to chronic renal failure include all of the following EXCEPT:

- A. Hyperkalemia
- B. Hypercalcemia
- C. Hypermagnesemia
- D. Metabolic acidosis
- E. Hyperphosphatemia

35. Visual disturbances after transurethral resection of the prostate are associated with:

- A. Permanent alterations in vision
- B. Normal fundoscopic exam
- C. Increased intraocular pressure
- D. Normal serum glycine concentrations
- E. Sorbitol metabolites

36. Hypokalemia is a side effect of all of the following diuretics EXCEPT:

- A. Mannitol
- B. Acetazolamide
- C. Furosemide
- D. Hydrochlorothiazide
- E. Spironolactone

37. Appropriate treatment of suspected myoglobinuria includes all of the following EXCEPT :
 - A. Alkalinizing the urine
 - B. Mannitol IV
 - C. Hydration
 - D. Dopamine 3 ug/kg/min IV
 - E. Acidifying the urine

38. Which of the following drugs is best for rapid sequence intubation in a patient with renal failure ?
 - A. High-dose vecuronium
 - B. High-dose atracurium
 - C. Priming dose vecuronium
 - D. Rocuronium
 - E. Succinylcholine

39. Cytomeglo virus (CMV) positive organs may be transplanted :
 - A. Never
 - B. Always
 - C. Into CMV negative recipients
 - D. Into CMV positive recipients
 - E. Into hepatitis B positive recipients

40. The most common cause of death in patients with Chronic renal failure is :
 - A. Anesthesia related
 - B. Sepsis
 - C. Uremia
 - D. Anemia
 - E. Coronary artery disease

- ✓ 41. In a transplanted heart, which of the following drugs is least effective in increasing the heart rate ?
 - A. Isoproterenol
 - B. Epinephrine
 - C. Dobutamine
 - D. Dopamine
 - E. Atropine

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42. Which of the following therapies remove excess potassium from a patient in renal failure?

- A. IV calcium chloride
- B. Hemodialysis
- C. Hyperventilation
- D. IV insulin
- E. IV insulin and glucose

43. What is the normal volume of blood in a normal, healthy term infant?

- A. 65 mL/kg
- B. 75 mL/kg
- C. 85 mL/kg
- D. 100 mL/kg
- E. 125 mL/kg

44. A 12-kg, one-year-old infant is undergoing an emergency laparotomy for intussusception. He has had an IV in place for one day and has a good urine output. What should the rate of infusion be during the surgical procedure?

- A. 60 mL/hr
- B. 80 mL/hr
- C. 100 mL/hr
- D. 120 mL/hr
- E. 160 mL/hr

45. A two-year-old presenting for elective repair of a bilateral inguinal hernia must be NPO how long before surgery?

- A. 3 hr for clear liquids, 4 hr for solids
- B. 2 hr for clear liquids, 6 hr for solids
- C. 3 hr for clear liquids, 8 hr for solids
- D. 3 hr for clear liquids, 6 hr for solids
- E. 2 hr for clear liquids, 4 hr for solids

46. A three-month-old male child has pyloric stenosis. He has been vomiting for three days and has a sunken fontanelle, tachycardia, poor skin turgor, and oliguria. The severity of his dehydration, expressed in percentage is :
- A. 3 %
 - B. 5 %
 - C. 10 %
 - D. 15 %
 - E. 20 %
47. Risk factors for retinopathy of prematurity (ROP) include all the following EXCEPT :
- A. Prematurity
 - B. Prolonged exposure to high O₂ concentrations
 - C. Intracranial hemorrhage
 - D. Septicemia
 - E. Patent ductus arteriosus (PDA)
48. The features found in the Treacher-Collins syndrome include the following EXCEPT :
- A. Mandibular hypoplasia
 - B. Abnormal ear shapes
 - C. Hemifacial microsomia
 - D. Congenital heart disease
 - E. Downward-sloping palpebral fissures
49. Which heart defect is most commonly seen in children with Down syndrome (trisomy 21) ?
- A. Ventricular septal defect (VSD)
 - B. Atrioventricular septal defect (AVSD)
 - C. Atrial septal defect (ASD)
 - D. Tetralogy of Fallot (TOF)
 - E. Transposition of the great arteries (TGA)

50. The most common form of tracheoesophageal fistula is :
- A. Esophageal atresia; upper segment of the esophagus communicates with the trachea
 - B. Esophageal atresia; lower segment of the esophagus communicates with the trachea
 - C. Esophageal atresia; both upper and lower segments of the esophagus communicate with the trachea
 - D. No esophageal atresia but communication somewhere with the trachea
 - E. No esophageal atresia but communication with the right mainstem bronchus
51. All the following statements regarding the transitional circulation in the newborn are true EXCEPT :
- A. The complete transition from fetal to adult circulation does not occur at the time of birth only
 - B. Pulmonary vascular resistance decreases by 75% with the newborn's first breath
 - C. Fetal circulation is a circuit in parallel
 - D. Blood can shunt through a patent ductus arteriosus
 - E. Prostaglandin E1 contracts the ductus arteriosus
52. Which of the following statements is true regarding newborn cardiovascular physiology ?
- A. The newborn myocardium is less sensitive to the cardiac depressant effects of halothane
 - B. A newborn has a very well-developed sympathetic nervous system
 - C. When faced with failing cardiac output, the newborn will usually increase stroke volume
 - D. A newborn has a very well-developed parasympathetic nervous system
 - E. The neonate has a very compliant myocardium
- ✓ 53. The earliest clinically evident sign or symptom of malignant hyperthermia is :
- A. Cardiac arrhythmias
 - B. Muscle rigidity
 - C. Cyanosis
 - D. Hyperthermia
 - E. Tachycardia and tachypnea

54. A premature infant is at greatest risk for the apnea of prematurity at or below what postconceptual age ?
- A. 40 Weeks
 - B. 45 Weeks
 - C. 50 Weeks
 - D. 55 Weeks
 - E. 60 Weeks
55. The ideal endotracheal tube size for a four-year-old child is :
- A. 3.5
 - B. 4.0
 - C. 4.5
 - D. 5.0
 - E. 5.5
56. A two-year-old male with a full stomach presents with epiglottitis. Ideal management for this child includes
- A. IV induction without muscle relaxants
 - B. Awake intubation
 - C. Inhalational induction with muscle relaxants
 - D. IV induction with muscle relaxants
 - E. Inhalational induction without muscle relaxants
57. Treatment of status asthmaticus may include one of the following :
- A. Fluid restriction
 - B. β_1 adrenergic agonists
 - C. α adrenergic agonists
 - D. Inhaled ipratropium bromide
 - E. A reduced infusion rate of theophylline in smokers

- 567 58. In the adult respiratory distress syndrome (ARDS), which of the following is True :
- A. Alveolar edema occurs as a result of increased pulmonary capillary hydrostatic pressure
 - B. Lung compliance is increased
 - C. Pancreatitis may be the cause
 - D. The etiology of the pulmonary failure is identified by examination of the chest x-ray
 - E. Positive end expiratory pressure (PEEP) can be used to increase intrapulmonary shunt
- 568 59. When an intra-aortic balloon pump is being used :
- A. After balloon deflation the assisted systole is increased compared to unassisted systole
 - B. Cardiac function is improved by an increase in preload to the left ventricle by balloon inflation
 - C. Blood pressure is increased through an increase in afterload during systole
 - D. Coronary blood flow is increased by balloon inflation during diastole
 - E. Balloon inflation should be timed to occur at the same time as aortic valve opening
- 569 60. Characteristic hemodynamic changes of early septic shock include one of the following :
- A. Bradycardia
 - B. Low systemic vascular resistance
 - C. High pulmonary capillary wedge pressure
 - D. Low cardiac output
 - E. Low mixed venous oxygen saturation (SvO₂)
- 570 61. Oxygen delivery to the tissues (DO₂) is increased by :
- A. Anemia
 - B. Increased oxygen consumption by the tissues
 - C. Hypoxia
 - D. Hypovolemia
 - E. Increased cardiac output

57 62. Arterial lines :

- A. Should be avoided in the ulnar artery because it is an end artery
- B. Do not cause catheter-related sepsis
- C. May be inserted in the femoral artery if there is no significant atherosclerosis of the vessel
- D. May produce an incorrectly low mean blood pressure if the wave form is overdamped
- E. Is less accurate than a blood pressure cuff for measuring BP in critically ill patients

63. In the fat embolism syndrome :

- A. Operative immobilization of the fracture should be delayed if the patient has respiratory distress
- B. A petechial rash develops on the trunk, which blanches under pressure
- C. Cerebral involvement is unusual
- D. Fat globules may be identified in the sputum
- E. The syndrome occurs at the time of the injury

64. Which of the following is compatible with the diagnosis of irreversible brain stem death?

- A. Temperature less than 30°C
- B. Seizure activity
- C. Spinal reflexes
- D. Unknown cause of coma
- E. Decerebrate posturing

57 65. Amrinone

- A. Has beta1 adrenergic agonist activity
- B. May cause thrombocytopenia with prolonged administration
- C. Causes vasoconstriction as the dose is increased
- D. Is a potent antiarrhythmic agent
- E. Decreases the amount of intracellular cyclic adenosine monophosphate (cAMP)

62 - A, C
63 - D
64 - C
65 - B, E

- 57 66. With regard to the arrhythmias :
- A wide complex tachycardia may be supraventricular in origin
 - Amiodarone may be used to treat supraventricular and ventricular tachycardias
 - Lidocaine is indicated for supraventricular tachycardias
 - Procainamide is indicated for Torsade de Pointes ventricular tachycardia
 - First-degree AV block is defined by a P-R interval greater than 0.12 seconds
- 57 67. Acute delirium occurring in the intensive care unit :
- Is usually due to preexisting psychiatric disorders
 - Should not be treated with haloperidol because of the risk of extrapyramidal side effects.
 - Is less common in the elderly
 - May result in a disturbed sleep-wake cycle
 - May be improved by amitriptyline
- 57 68. Pseudomembranous colitis :
- Is caused by *Clostridium welchii*
 - May be caused by vancomycin
 - Is a variant of Crohn's disease
 - May be treated with clindamycin
 - Presents with watery diarrhea
- 57 69. In regard to the dialysis techniques :
- Continuous arteriovenous hemofiltration (CAVH) is inefficient for the removal of fluid
 - Hemodialysis is the method of choice for a cardiovascularly unstable patient
 - Peritoneal dialysis carries a risk of peritonitis
 - CAVH does not require anticoagulation
 - Short periods of peritoneal dialysis are more efficient than hemodialysis
- X 70. An example of nociceptive pain is :
- Pain from chronic degenerative joint disease
 - Phantom limb pain
 - Postherpetic neuralgia
 - Refractory pain after spinal cord injury
 - Refractory pain after cerebrovascular injury

66 B
7 D
67 C
68 A
69 A
70 A

71. A patient with renal failure has acute pain from a fractured femur. Which drug is not advised for pain control in the patient ?
- A. Morphine
 - B. Sufentanil
 - C. Hydromorphone
 - D. Meperidine
 - E. Fentanyl
72. A true statement about nonsteroidal anti-inflammatory drugs is :
- A. They act on both peripheral and central sites to block prostaglandin synthesis
 - B. They work primarily by stimulating the production of cyclooxygenase
 - C. The effect of aspirin on platelet function is reversed 24 h after discontinuing the drug
 - D. Food ingestion with these drugs decreases their absolute bioavailability
 - E. In general, these drugs demonstrate very little protein binding
73. In prescribing medications for chronic pain :
- A. Nonnarcotic analgesics often can control pain of nonmalignant origin
 - B. Drugs should be prescribed on a PRN (as circumstances require) basis
 - C. Narcotics should be avoided because they are addictive
 - D. Sedative-hypnotics such as benzodiazepines can be taken for a long time without the development of dependency
 - E. Diphenhydramine and hydroxyzine are potentially addictive and should be avoided
74. The earliest sign in the development of malignant hyperthermia is :
- A. Myoglobinuria
 - B. Increased temperature
 - C. Muscle rigidity
 - D. Increased end-tidal CO₂
 - E. Acidosis
75. Hypotension during or after carotid artery surgery may be caused by :
- A. Stroke after carotid endarterectomy
 - B. Intraoperative denervation of the carotid sinus
 - C. Intraoperative denervation of the carotid body
 - D. Plaque removal from the region of the carotid baroreceptors
 - E. Intraoperative transection of the recurrent laryngeal nerve

71-D

72-A

73

74-D

75-

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Final exam - Paper Two
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12-2 A.M

NAME:
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- Q. 1. All the following may alter stimulation threshold in pacemakers **EXCEPT:-**

- A. Hypokalemia
- B. Hyperkalemia
- C. Hypoxemia
- D. Isoflurane
- E. Catecholamines

2. The definition of bipolar pacing in cardiac pacemakers is as follows:

- A. The pacemaker will have both an epicardial electrode and an endocardial electrode as backup in case one or the other fails
- B. The pacemaker will have one electrode in the atrium and one electrode in the ventricle to provide atrioventricular sequential pacing
- C. The pacemaker will have the placement of both the stimulating (negative) electrode and the ground (positive) electrode in the cardiac chamber that is being paced
- D. The pacemaker will have the cardiac chamber that is being paced and the ground electrode distal from the chamber
- E. The pacemaker will have the stimulating electrode distal from the heart and the ground electrode in the chamber that is being paced

3. All the following statements are true **EXCEPT:**

- A. Pericardial fluid volume is normally 20 to 25 mL
- B. Cardiac tamponade is characterized by a decrease in stroke volume (SV) and blood pressure (BP)
- C. Pulsus paradoxus is a sign of cardiac tamponade
- D. Pulmonary capillary wedge pressure (PCWP) is normally elevated relative to right atrial pressure (RAP) and right ventricular pressure (RVP) in cardiac tamponade
- E. Increased intrathoracic pressure, as seen with positive pressure ventilation (PPV), can be hazardous in the presence of cardiac tamponade

4. The risk factor most commonly associated with descending aortic dissection is:

- A. Atherosclerosis
- B. End-stage syphilis
- C. Blunt chest trauma
- D. Hypertension
- E. Marfan's syndrome

1-D
C - 2
M - 1

5. A rare postoperative complication that can occur after abdominal aortic aneurysmectomy is :
- A. Renal failure
 - B. Pulmonary failure
 - C. Spinal cord infarction
 - D. Hypovolemia
 - E. Myocardial dysfunction
6. All the following may cause a decrease in renal cortical perfusion after aortic cross-clamping EXCEPT:
- A. Increase in the secretion of renin-angiotensin
 - B. Increase in the blood level of catecholamines
 - C. Decrease in cardiac output
 - D. Embolization of atheromatous material to the kidney
 - E. Decrease in renal vascular resistance
7. Methods of renal protection before aortic cross-clamping may include all the following EXCEPT:
- A. Intravenous mannitol 0.25 to 1.0 g/kg
 - B. Intravenous furosemide 5 to 50 mg
 - C. Infusion of low-dose dopamine 1 to 3 µg/kg/min
 - D. Epidural anesthesia with a sympathetic blockade level to T6
 - E. Systemic and renal artery calcium channel blockade
8. The complications that occur secondary to acute dissection of the thoracic aorta (ascending and descending) may include all the following EXCEPT:
- A. Acute aortic insufficiency
 - B. Acute pericardial tamponade
 - C. Compromise of circulation to the brain and heart
 - D. Acute aortic stenosis
 - E. Compromise of circulation to the spinal cord and subdiaphragmatic viscera
9. The major goal of premedication in a patient before surgery for abdominal aortic aneurysm is to :
- A. Provide amnesia
 - B. Prevent postoperative nausea and vomiting
 - C. Decrease the risk of aspiration
 - D. Provide a relaxed and tranquil patient
 - E. Smooth the onset of anaesthesia

7 E?
8 D = dilation
→ a.p.
9 ?

10. Hypotension during or after carotid artery surgery may be caused by all EXCEPT:

- A. Stroke after carotid endarterectomy
- B. Intraoperative denervation of the carotid sinus
- C. Intraoperative denervation of the carotid body
- D. Plaque removal from the region of the carotid baroreceptors
- E. Intraoperative transection of the recurrent laryngeal nerve

11. A possible cause of hypertension after carotid endarterectomy is:

- A. Trauma to the recurrent laryngeal nerve
- B. Plaque removal from the carotid baroreceptor
- C. Transection of the phrenic nerve
- D. Trauma to the stellate ganglion
- E. Denervation of the carotid sinus

12. A true statement about the Univent bronchial blocker tube is:

- A. It is more difficult to place than a conventional double-lumen tube
- B. It is recommended that the tube be changed to a single-lumen tube for postoperative ventilation
- C. The tube allows for rapid deflation of the selected lung
- D. The bronchial blocker lumen is rarely blocked by secretions
- E. Single lobes may be collapsed instead of an entire lung

13. A patient presents for excision of a bronchopleural cutaneous fistula. Which mode of intubation will most effectively achieve lung separation?

- A. Single-lumen endotracheal tube
- B. Single-lumen endotracheal tube and bronchial blocker
- C. Endobronchial intubation with a single-lumen tube
- D. Spontaneous mask ventilation
- E. Double-lumen endotracheal tube

14. A true statement about ventilation and perfusion of the lung is:

- A. Ventilation and perfusion are most closely matched in West's Zone 1
- B. Intrapleural pressure is more negative at the bottom of the upright lung than at the top
- C. Physiologic shunting is most pronounced in zone 2 of the lung
- D. Blood flow through zone 2 of the lung is dependent on the pressure difference between the pulmonary arteries and the alveoli
- E. Zone 3 has the highest V/Q ratio of the lung zones

10-11 E
12-13 C
14-15 E
16-17 D
18-19 E
20-21 C
22-23 E
24-25 C
26-27 E
28-29 C
30-31 E
32-33 C
34-35 E
36-37 C
38-39 E
40-41 C
42-43 E
44-45 C
46-47 E
48-49 C
50-51 E
52-53 C
54-55 E
56-57 C
58-59 E
60-61 C
62-63 E
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15. Correct placement of a central venous catheter for treatment of a venous air embolus can be ascertained by all the following methods

EXCEPT:

- A. Radiograph of the chest
- B. Configuration of the P waves on the electrocardiogram with a saline-filled catheter that acts as a unipolar lead
- C. Inserting the central line to 5 cm and stopping
- D. Discerning a transduced venous pressure waveform
- E. Transducing the venous catheter while advancing it until right ventricular pressure patterns are seen and then pulling the catheter back until one sees a right atrial pressure pattern

16. Causes of pulmonary dysfunction after acute spinal cord transection in the cervical region include all the following

EXCEPT:

- A. Impaired alveolar ventilation
- B. Cervical cord transection in the C2-C4 region, which leads to diaphragmatic paralysis with apnea
- C. Neurogenic pulmonary edema
- D. Greatly diminished vital capacity
- E. Restrictive lung changes that lead to an inability to clear bronchial secretions

17. Treatment of a venous air embolus includes all the following

EXCEPT:

- A. Irrigation of the operative site by the surgeon and application of bone wax to all bone edges to seal open vessels
- B. Discontinuation of nitrous oxide (N_2O) if it is being used and increasing the F_{IO_2} to 1.0
- C. Attempting to aspirate the venous air embolus from the right heart via a central line
- D. Administration of mannitol 0.25 g/kg both to decrease intracranial pressure and for renal protection
- E. Support of the cardiovascular system with fluid administration and an inotrope if necessary

18. True statement concerning EEG patterns and their relationship to various anaesthetic agents include all the following EXCEPT:

- A. Isoflurane at 2.0 to 2.5 MAC causes electrical silence
- B. Barbiturates produce electrical silence
- C. Enflurane at 2.0 MAC causes seizure activity
- D. High-dose fentanyl causes seizure activity
- E. Halothane, even in high doses, rarely causes electrical silence

19. With normocapnia, all the following drugs ~~in~~ [↑] the intracranial pressure (ICP) EXCEPT:

- A. Ketamine
- B. Lidocaine
- C. N₂O
- D. Halothane
- E. Isoflurane

20. All the following statements regarding intracranial pressure are true EXCEPT:

- A. Normal intracranial pressure is 10 to 15 mmHg
- B. Intracranial pressure increases lead to decreased cerebral perfusion pressure
- C. Plateau waves are decreases in intracranial pressure seen after mannitol diuresis
- D. Pretreatment with a nondepolarizing muscle relaxant prevents the rise in intracranial pressure seen with succinylcholine
- E. The supine position increases intracranial pressure

21. True statements concerning the use of succinylcholine in patients with spinal cord injuries include all the following EXCEPT:

- A. A dose of a nondepolarizing muscle relaxant will attenuate the risk of hyperkalemia after administration of succinylcholine
- B. The cause of hyperkalemia in response to the use of succinylcholine may be a proliferation of extrajunctional acetylcholine receptors
- C. Peak release of potassium after succinylcholine occurs when the injury is about 14 days old
- D. Hyperkalemia seen after the use of succinylcholine is not dependent on the dose
- E. If at all possible, the use of succinylcholine should be avoided

22. From fastest onset of action to slowest onset of action, the modalities for decreasing intracranial pressure are:

- A. Hyperventilation, osmotic diuretics, loop diuretics, steroids
- B. Hyperventilation, osmotic diuretics, steroids, loop diuretics
- C. Hyperventilation, loop diuretics, osmotic diuretics, steroids
- D. Loop diuretics, hyperventilation, osmotic diuretics, steroids
- E. Loop diuretics, osmotic diuretics, hyperventilation, steroids

19-B
20-C
21-A
22-A

23. Which of the following agents is most likely to modify autoregulation of cerebral blood flow in response to changes in arterial blood pressure:

- A. Thiopental
- B. Fentanyl
- C. Morphine
- D. Halothane
- E. Isoflurane

24. The most sensitive means of detection of a venous air embolism is

- A. End-tidal CO₂
- B. Doppler probe
- C. Pulmonary arterial catheter
- D. Transesophageal echo
- E. Pulse oximetry

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True

25. The complication most commonly associated with the sitting position is:

- A. Compression injury
- B. Marked postural hypotension
- C. Quinaplegia
- D. Deeper-detectable venous air embolism
- E. Spinal hematoma

26. Hormonal changes that occur during surgical stimulation and that may have an effect on renal blood flow include increased levels of all the following EXCEPT:

- A. Sympathetic nervous system activity
- B. Insulin secretion
- C. Antidiuretic hormone (ADH)
- D. Renin
- E. Angiotensin

27. Characteristic changes in patients with end-stage renal disease (ESRD) include all the following EXCEPT:

- A. A shift to the right of the oxyhemoglobin dissociation curve
- B. A decrease in metabolic rate
- C. Platelet dysfunction
- D. Anemia
- E. Increased cardiac output

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28. Anaesthetic options for extracorporeal shock wave lithotripsy (ESWL) include all the following EXCEPT:

- A. General anaesthesia
- B. Spinal anaesthesia
- C. Epidural anaesthesia
- ☒ D. Local anaesthesia
- E. Intravenous sedation

29. All the following are sequelae of water intoxication induced during transurethral resection of the prostate (TURP) EXCEPT:

- A. Hyponatremia that may lead to cerebral edema
- B. Central nervous system symptoms including drowsiness, irritability, confusion, and seizures
- ☒ C. Ammonia toxicity leading to eighth cranial nerve (CN VIII) damage
- D. Pulmonary edema
- E. Glycine and ammonia toxicity that may lead to transient blindness and a form of encephalopathy

30. Potential benefits of regional anaesthesia (epidural, spinal) for transurethral resection of the prostate (TURP) include all the following EXCEPT:-

- A. It may cause better relaxation of urethral musculature and allow easier passage of the resectoscope than general anaesthesia.
- B. An awake patient may demonstrate early signs of water intoxication.
- C. An awake patient may be able to describe signs of bladder perforation.
- D. An awake patient may be able to describe signs of bladder overfilling.
- ☒ E. Less blood loss will occur during the procedure than occurs with general anaesthesia.

31. All the following statements are true EXCEPT:

- A. The liver receives approximately 30 percent of cardiac output
- B. The hepatic artery supplies 45 to 50 percent of hepatic oxygen
- C. Hepatic oxygen delivery is better maintained with isoflurane than with halothane
- ☒ D. Decrease in portal vein blood flow usually is associated with a concomitant decrease in hepatic arterial blood flow
- E. Local release of vasoconstrictors may decrease hepatic blood flow during abdominal surgery

28-B
29-C
30-D
31-D

32. All the following statements concerning the fetal hematologic system are true EXCEPT:

- A. Physiologic anemia occurs at 1 month of age
- B. Fetal hemoglobin has P-50 of 19 mmHg compared with 26 mmHg for adult hemoglobin
- C. Fetal hemoglobin has a greater affinity for O₂ and this manifests as decreased O₂ delivery to the periphery compared with adult hemoglobin
- D. The decreased P-50 of fetal hemoglobin causes a shift to the left of the oxygen dissociation curve
- E. Decreased release of oxygen by fetal hemoglobin is offset by increased oxygen delivery provided by elevated hemoglobin concentrations in neonates

33. The glomerular filtration rate reaches that of the adult by age :

- A. 1 month
- B. 6 months
- C. 1 year
- D. 18 months
- E. 2 years

34. The following statements about thermoregulation in the neonate are all true EXCEPT:

- A. Neonates have a larger body surface area compared with body weight than do adults
- B. Neonates have mature central thermoregulatory control
- C. Neonates have a specialized ability to produce heat
- D. Neonates have a very thin layer of subcutaneous fat
- E. Neonates cannot shiver to produce heat

35. Onset of spontaneous ventilation at birth causes all the following EXCEPT:-

- A. A decrease in pulmonary vascular resistance
 - B. An increase in systemic vascular resistance
 - C. An increase in left atrial pressure with a functional closure of the foramen ovale
 - D. Anatomic closure of the foramen ovale 1 month after birth
 - E. Functional closure of the ducts arteriosus 10 to 15 h after birth
- 22
- E

36. Which of the following statements p to control of ventilation in neonates is true :
- A. Hypoxia leads to sustained hyperventilation
 - B. Hypercarbia leads to sustained hyperventilation
 - C. The ventilatory response to hypercarbia in newborns is mature birth
 - D. With both hypoxia and hypercarbia, newborns respond initially by hyperventilating but then start to hypoventilate
 - E. None of the above

37. All the following statements are true EXCEPT:

- A. Ventricular fibrillation can be caused by currents below the level of human perception in a patient with a PA catheter
- B. Equipment ground wires provide the major source of protection from microshock
- C. Ohm's law states that current (I) is equal to the product of resistance (R) and electromotive force (V)
- D. A dry ground pad on a patient can result in skin burns
- E. From the point of view of electrical safety, bipolar is safer than unipolar electrosurgery

38. In normal ECG all statements are true EXCEPT:

- A. An inverted T wave in lead I or II
- B. A Q wave in leads I, II or aVF which does not exceed 0.04s
- C. An electrical axis between -30° and -90°
- D. T wave inversion in precordial leads V_1 and V_2
- E. S-T segment deviation up to 1mm

39. All the following reduce mortality when started soon after an acute MI EXCEPT:

- A. I.V thrombolytic therapy within 24 hrs
- B. I.V atenolol
- C. Thoracic epidural analgesia
- D. Glyceryl trinitrate
- E. Aspirin

40. The following finding occur in diabetic ketoacidosis EXCEPT:

- A. Hyponatraemia
- B. Hypokalaemia
- C. Elevated serum urea and normal serum creatinine
- D. Raised plasma osmolality
- E. Increased urinary phosphate concentration

41. Which of the following is an example of right to left shunt
- A. Patent ductus arteriosus
 - B. Fallot's tetralogy
 - C. Coarctation of the aorta
 - D. Atrial septal defect
 - E. Ventricular septal defect

42. Oesophageal intubation can most reliably detected by:

- A. Auscultation of the lungs
- B. Pulse oximeter
- C. Capnography
- D. High airway pressure
- E. Presence of cyanosis

43. When making a diagnosis of brain stem death

- A. The pupils must be fixed and dilated
- B. The patient's core temperature must be greater than 35°C
- C. Cranial reflexes delayed
- D. Doll's eye movements must be present
- E. Spinal reflexes must be absent

44. A biochemical change that commonly occurs in acute renal failure is:

- A. Hypercalcaemia
- B. Hyperuricaemia
- C. Hypophosphataemia
- D. Hypomagnesaemia
- E. Hyponatraemia

45. The normal ranges for the following parameters are:

- A. PCWP 8-12 cmH₂O
- B. Systemic vascular resistance indexed SVRI = 600-1500 dyne-sec
- C. PVO₂ 5-8 Kpa (mixed venous)
- D. Arterial oxygen content CaO₂ 18-20ml/dl-l
- E. Venous oxygen saturation SVO₂ = 40%

46. Ropivacaine all statements are true EXCEPT:

- A. Is an amide local anaesthetic
- B. Has an identical dissociation constant to bupivacaine
- C. Has intrinsic vasoconstrictor activity
- D. Is more potent than bupivacaine
- E. Is less arrhythmogenic than bupivacaine

47. During one-lung anaesthesia:

- A. Inhalational agents impair hypoxic vasoconstriction
- B. PEEP to the dependent lung is contraindicated
- C. Hypercapnia is common
- D. Hypoxaemia is less severe if the collapsed lung is normal
- E. True shunt is partially corrected by increasing inspired O₂ concentration

48. Gelatins (Haemaccel - Gelofusione) all true EXCEPT:

- A. Have colloid osmotic pressure of about 230
- B. The half-life about 12 hrs
- C. They have high concentration of potassium ions
- D. They have a shelf-half life at ambient temperature of up to 3 yrs
- E. They interfere with blood grouping

49. Sevoflurane:

- A. Has a MAC value of approximately 0.3%
- B. Has a blood-gas partition coefficient of 0.6
- C. It sensitises the myocardium to catecholamine
- D. It does not produce fluoride ions
- E. It is a very stable compound

50. Propofol:

- A. Is extremely water-soluble
- B. Anaesthesia is induced in 60-70 sec
- C. It reduces the duration of seizures induced by ECT (Electric convulsive therapy)
- D. It increases cerebral blood flow
- E. The elimination half-life is about 3-5 min

51. Pipicuronium:

- A. Is a depolarizing muscle relaxant
- B. The dose is about 0.5 mg/kg
- C. It undergoes spontaneous degradation
- D. Is totally metabolized by the liver
- E. It has a duration of action of about 2 1/2 hr

52. In which of the following neurological diseases should Scopolamine be avoided as a pre-medication?

- A. Parkinson's Disease
- B. Alzheimer's Disease
- C. Multiple sclerosis
- D. Narcolepsy
- E. Amyotrophic lateral sclerosis

53. Which of the following agents reduces intracranial pressure?

- A. Ketamine
- B. Suxamethonium
- C. Urea
- D. Carbamazepine
- E. Isoflurane

54. All the following statements concerning Insulin are true EXCEPT:

- A. Promotes glucose uptake by adipose tissue
- B. Inhibits hepatic gluconeogenesis
- C. Inhibits lipogenesis
- D. Is not necessary for cerebral glucose uptake
- E. Inhibits fatty acid release from adipose tissue

55. Which one of the following statements is true with regards to a patients' APACHE II score?

- A. It is based on the patients physiological variables at the time of admission to the ICU
- B. It reliably predicts outcomes in individual patients
- C. It includes liver function as one of the physiological variables
- D. It allows comparison of group outcome in different ICU units
- E. It does not use the Glasgow Coma Scale

56. A chronic complication of the neonatal respiratory distress syndrome is:

- A. Chronic obstructive pulmonary disease
- B. Juvenile onset emphysema
- C. Bronchopulmonary dysplasia
- D. Tracheoesophageal fistula
- E. Laryngotracheobronchitis

57. Which of the following statements is true during one lung anaesthesia?

- A. Inhalational agents impair hypoxic pulmonary vasoconstriction
- B. PEEP to the dependent lung is contraindicated
- C. Hypoxaemia is less severe if the collapsed lung is normal
- D. Hypercapnia is common
- E. True shunt is partially corrected by increasing FiO_2 concentration

58. Compared to a 30 year old patient a 75 ; old patient is likely to have:
- A. A more rapid induction of anaesthesia following administration of Thiopentone
 - B. Decreased rate of metabolism of Diazepam
 - C. Shorter duration of action of Pancuronium
 - D. Decreased apparent volume of distribution of Fentanyl
 - E. Greater plasma protein binding of Meperidine (Pethidine)
59. In which of the following types of shock have pharmacological doses of corticosteroids been demonstrated to improve survival rate?
- A. Hypovolaemic shock
 - B. Septic shock
 - C. Neurogenic shock
 - D. Cardiogenic shock
 - E. Traumatic shock
60. The most accepted indication for high frequency ventilation in adults is:
- A. Bronchopleural fistula
 - B. Adult respiratory distress syndrome
 - C. Cardiovascular instability
 - D. Pneumothorax
 - E. Carbon dioxide retention
61. A 31 year old patient has been in the ICU on a ventilator. The patient does not open his eyes to any stimulus, has no verbal response and no motor response. What would his Glasgow Coma Scale be?
- A. 0
 - B. 1
 - C. 2
 - D. 3
 - E. 4
62. Each of the following post-operative complications of thyroid surgery can result in upper airway obstruction EXCEPT:
- A. Tracheomalacia
 - B. Tetany
 - C. Cervical haematoma
 - D. Bilateral recurrent laryngeal nerve injury
 - E. Bilateral superior laryngeal nerve injury
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63. Which of the following measures should provide the greatest increase in cardiac output in a patient with cardiac tamponade?
- A. Digitalisation
 - B. Volume loading
 - C. Isoproterenol infusion
 - D. Norepinephrine infusion
 - E. Phenylephrine infusion
64. Which of the following cardiovascular changes occur during Fentanyl (50 mcg/kg) and Oxygen O₂ anaesthesia in patients undergoing myocardial revascularisation?
- A. Tachycardia
 - B. Increased cardiac output
 - C. Hypertension
 - D. Decreased systemic vascular resistance
 - E. Increased pulmonary capillary wedge pressure
65. Acute pancreatitis may cause all the following complications EXCEPT:
- A. Hypoglycaemia
 - B. Retroperitoneal abscess
 - C. Pancreatic abscess
 - D. Pancreatic pseudocyst
 - E. Tetany
66. Malignant hyperthermia is believed to involve a generalized disorder of membrane permeability to:
- A. Sodium
 - B. Potassium
 - C. Calcium
 - D. Magnesium
 - E. Phosphate
67. The most common reason for admitting day case surgery to the hospital following general anaesthesia is:
- A. Hypotension
 - B. Respiratory complications
 - C. Inability to ambulate
 - D. Surgical pain
 - E. Nausea and vomiting

63. Which of the following respiratory parameters is not increased in the parturient?

- A. Minute ventilation
- B. Tidal volume
- C. Arterial PaO_2
- D. Oxygen consumption
- E. Serum bicarbonate

69. Which of the following is the most useful in improving neurologic outcome after cardiac arrest?

- A. Steroids
- B. Hypothermia
- C. Barbiturates
- D. Ibuprofen
- E. Calcium

70. The afferent input for somatosensory evoked potentials (SSEPs) is carried through which spinal cord tract?

- A. Spinocerebellar
- B. Spinothalamic
- C. Dorsal columns
- D. Corticospinal
- E. Vestibulospinal

71. The most rapid maneuver available for lowering Intracranial pressure in a patient with a large Intracranial mass is:

- A. Mannitol, 1 g/kg IV
- B. Ketamine, 1 mg/kg IV
- C. Hyperventilation to 25 mmHg PaCO_2
- D. Furosemide, 1 mg/kg IV
- E. Methylprednisolone, 30 mg/kg IV

72. How long after a stroke can anesthesia for surgery be carried out with about the same risk of a perioperative occlusive vascular accident as existed immediately before the previous stroke?

- A. 1 week
- B. 1 month
- C. 6 months
- D. 9 months
- E. 1 year